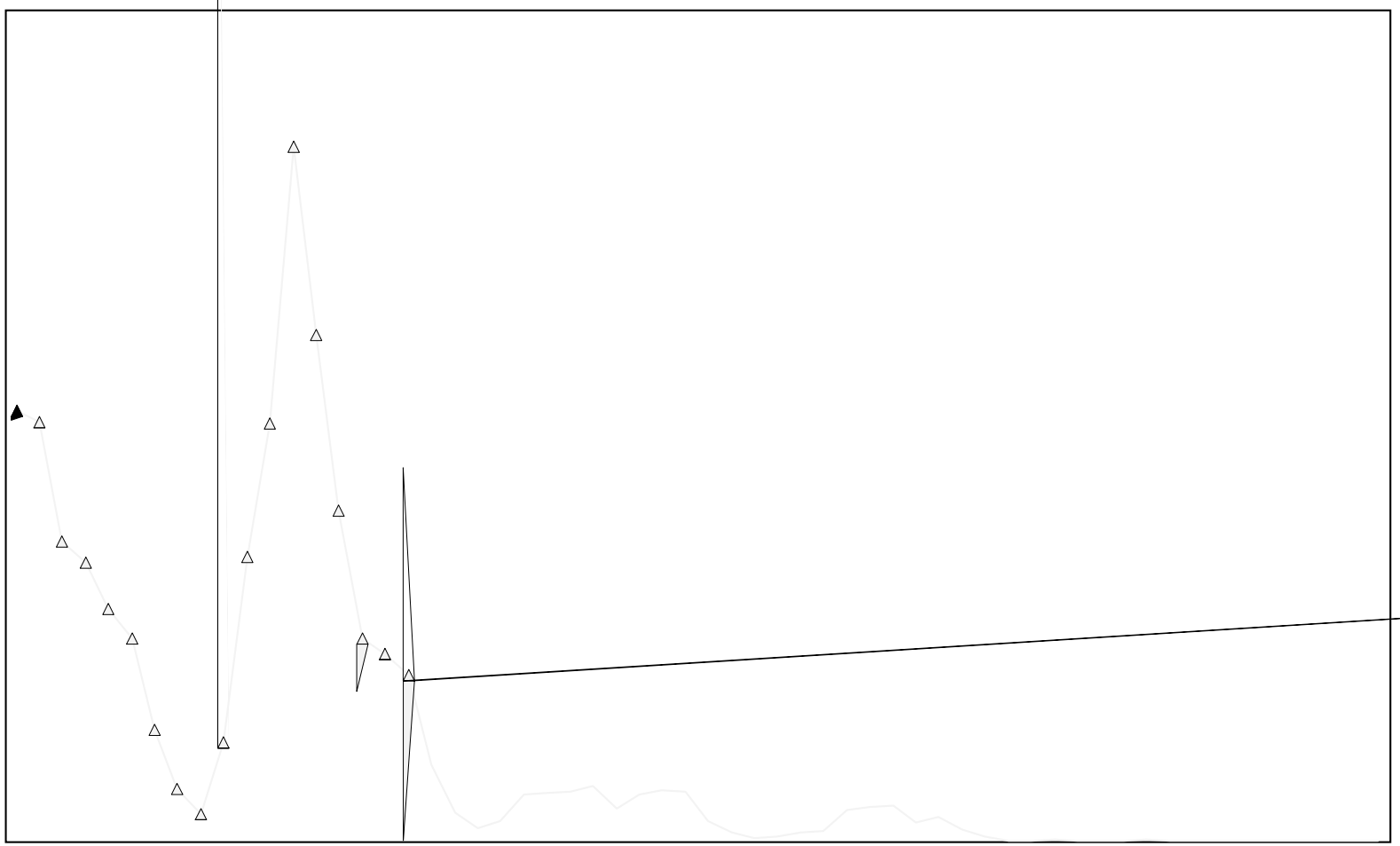
Public Health Service
Centers for Disease Control
and Prevention (CDC)

Memorandum

Date: January 7, 2011



Surveillance, Surveillance, Surveillance!

SUDAN: GUINEA WORM "PEACE DIVIDEND" GETTING CLOSER

Results presented at the Fifth Annual Program Review of the Southern Sudan Guinea Worm Eradication Program (SSGWEP) that was held in Juba on December 8-9, 2010 show continued progress in 2010 towards the goal of interrupting transmission of Guinea worm disease in Southern Sudan by the end of 2012. Between 2009 and January - November 2010, the number of cases was reduced by 38%, from 2,733 to a provisional total of 1,686 (Figure 2), and the number of endemic villages reporting indigenous cases was reduced by 61% from 582 in 2009 to 226 in 2010. During January-November 2010 a total of 726 villages reported one or more cases of GWD, and 500 of those villages reported only imported cases. Since 2006 the SSGWEP has reduced the number of cases by 92% and the number of endemic villages by 93%. Figure 3 shows the geographic distribution of endemic villages during 2009 and 2010.

Seventy-four percent (74%) of the cases reported so far in 2010 were contained, and 30% of all cases were contained in a case containment center, compared to 8% contained in a case containment center in 2009. The monthly reporting rate and percentage of endemic villages with health education and complete cloth filter coverage was near 100% in 2009 and 2010, while the percentage of endemic villages with pipe filters increased from 47% to 60%. ABATE® Larvicide coverage increased from 45% to 60% and safe water coverage increased from 16% to 22% of endemic villages. The Ministry of Water Resources and Irrigation (MWRI) and UNICEF completed 85 of 100 new water points targeted for 2010. These new water points were completed in 69 villages that reported 547 cases of Guinea worm disease in 2009 (20% of all cases that year) and 130 cases in 2010 (8% of 1,686 cases in 2010). MWRI and UNICEF expect to begin drilling by six contractors in mid-January 2011. Repair of several boreholes in endemic communities in the Greater Kapoeta focus has languished, however.

Southern Sudan now contains 95% of all cases in the world. 91% of all Southern Sudan's cases in 2010 occurred in only 6 of Southern Sudan's 80 counties: Tonj North, East and South in Warrap State, Kapoeta East and North in Eastern Equatoria State, and Awerial in Lakes State. The same six counties contain 87% of all cases remaining in the world. The Greater Kapoeta focus is an especially complex mix of transmission in villages, gardens (farming areas), cattle camps, with frequent migration among the different sites and resistance to banding. It also is the site of eight transmission in the calendar year (Figure 4). SSGWEP operations were disrupted by insecurity incidents in 2010, compared to 32 such incidents in 2009. There is some concern about the hands of displaced persons now returning to high-risk areas, especially in Warrap State.

The Integrated Disease Surveillance and Response (IDSR) system being assisted by the World Health Organization (WHO) and the United States Agency for International Development (USAID) as the main means to detect cases in GW-free areas has improved, averaging 57 (71%) of all counties reported in weeks 37-45 of 2010, but needs to improve even more in order to detect any imported cases of GWD in GW-free areas quickly. Of Southern Sudan's 80 counties, 18 still have indigenous transmission of GWD and 62 are considered GW-free. Still urgently needed is a written Plan of Action for implementation, supervision, monitoring and evaluation of surveillance in GW-free areas including standardized protocol and case investigation and cross-notification forms, as well as standard operating procedures for reporting and investigating rumors. The Recommendations from the Program Review are listed below.

The Review, which was attended by about 100 participants, was opened by the Acting Minister of Health, Her Excellency Agnes K. Lasuba, and the Minister of Water Resources and Irrigation, His Excellency Paul Mayoum Akec. Three County Commissioners from Tonj South, Tonj East and Terekeka also attended, as did representatives from WHO, UNICEF and The Carter Center.

Figure 2

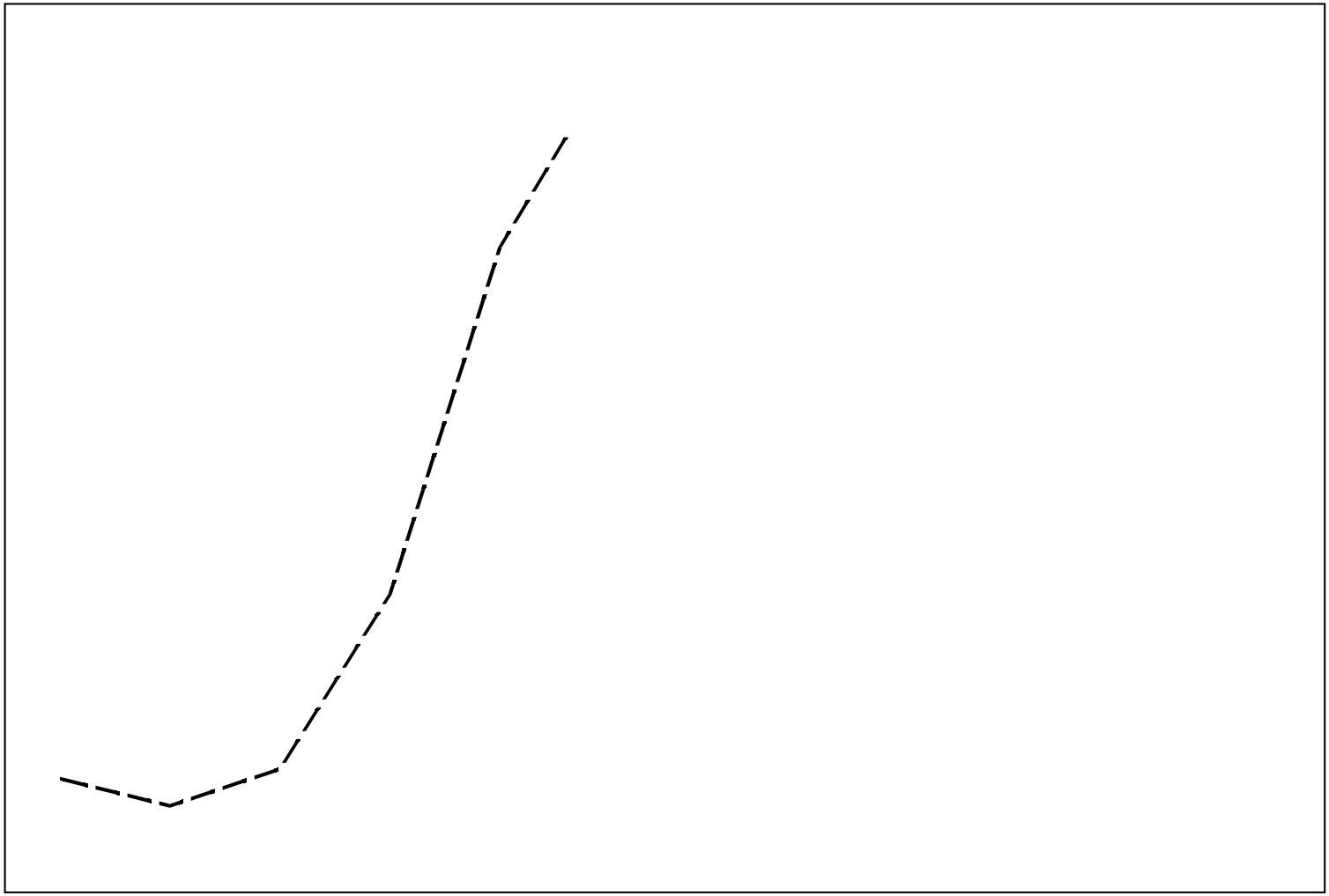


Figure 3

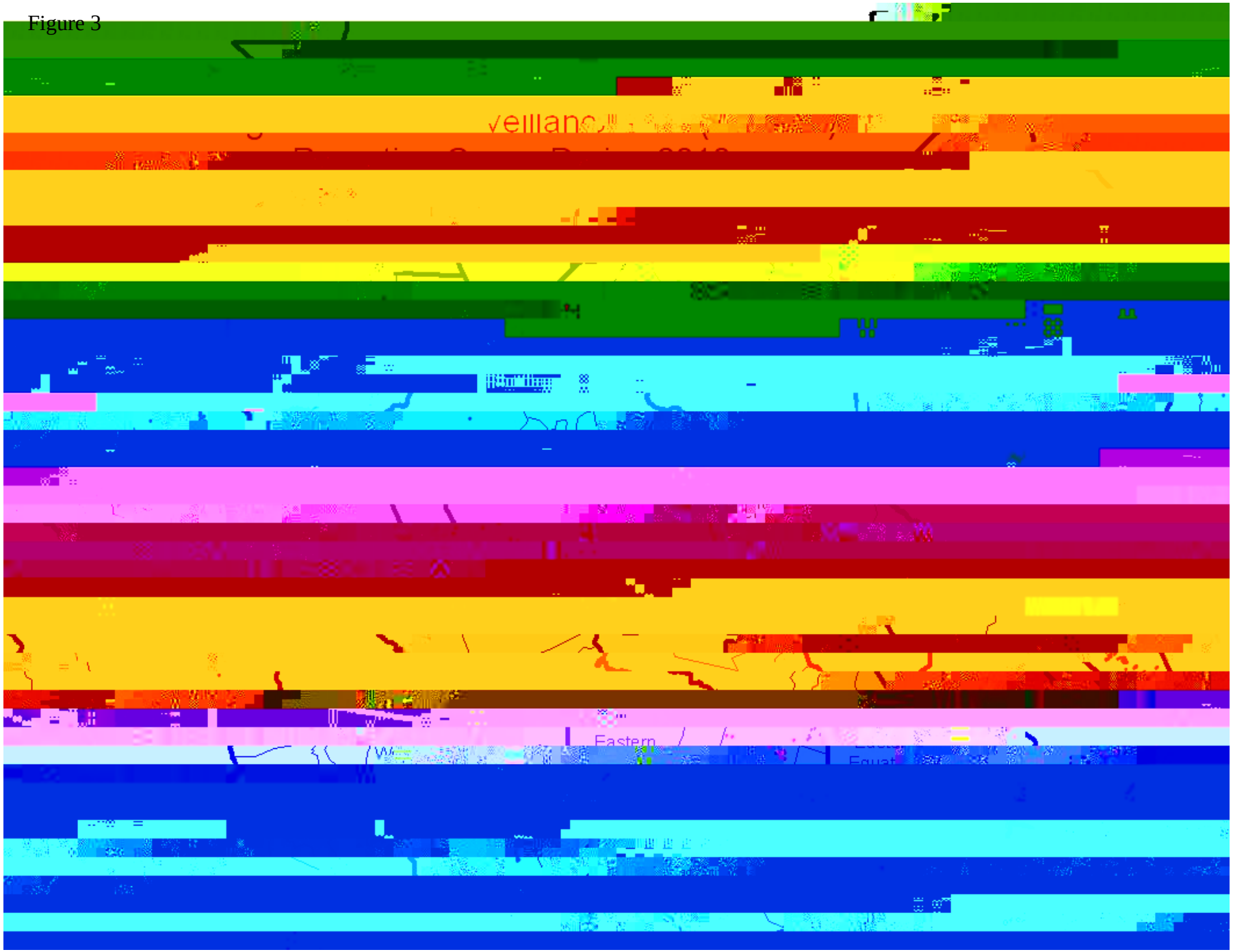
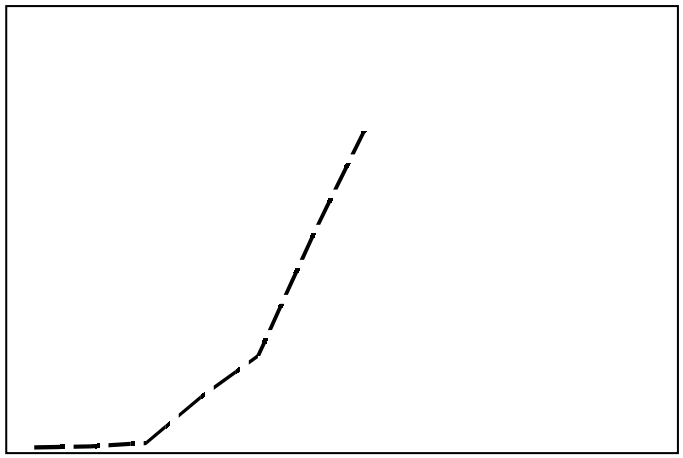


Figure 4



years of intense and heroic efforts. THANK YOU, Al and welcome to your new position, David! Ms. Jessica Flanneryis the new deputy RTA in Juba. Welcome Jessica!

5th Annual SSGWEP Review Meeting Recommendations

1. The Task Force should meet every month, review the progress and plan for subsequent months. Start date of February 1, 2011.
2. The Ministry of Water Resources and Irrigation, with the assistance of the SSGWEP, should write letters to the State Governors of EEQ, Warrap, Lakes States, and the County Commissioners of Tonj North, Tonj East and Tonj South, Kapoeta East, Kapoeta North and Aweriel targeting the 84 highest priority EVs as of 2010 for safe water provision.
3. The Technical Advisors/Program Officers should analyze and investigate with the Field Officers the reasons for non-containment of cases of GWD during 2010 in order to improve containment rates during 2011.
4. The SSGWEP should consider using "Official Pond Protectors" in special locations such as where Abate can not be applied, large water sources, 5+ villages, villages with low filter uptake, and cattle camp populations.
5. The state and county surveillance officers and the SSGWEP at least on a monthly basis should exchange information on the rumors and confirmed guinea-worm disease cases, list of priority villages, villages with GW volunteers.

Detect Every Case! Contain Every Worm! Explain Every Source!

ETHIOPIA & MALI: ALMOST THERE

Ethiopia has reported 20 indigenous cases of dracunculiasis in 2010, plus one case imported from Southern Sudan, compared to 24 indigenous cases reported during 2009, for a reduction of 17%.(Figure 5) Cases were reported in eleven months of 2010 (February – December), compared to six months of 2009 (March-August), which suggests the program did not detect all cases of the disease in 2009. The line listing of cases in 2010 is given in Table 1. All 20 indigenous cases were reported from 9 villages in Gog woreda (district) of Gambella Region, including 4 villages that only had cases imported from other communities in the district. (Figure 6: Map)

With 19 (90%) of the 21 cases contained, compared to a 79% (19/24 cases) containment rate in 2009, the Ethiopian Dracunculiasis Eradication Program (EDEP) appears to have had tighter control measures as well as better surveillance in 2010. Eighteen of the cases in 2010 were contained in a case containment center. During 2010 the EDEP conducted active surveillance in all 69 villages of Gog District, and all of the endemic villages were covered by health education, cloth and pipe filters, and ABATE® Larvicide. Six of the 9 villages reporting cases had a least one source of safe water. UNICEF plans to help drill five new borehole wells early in 2011, to cover some or all of the five most vulnerable sites remaining: Chayanak, Wichini, and Utuyu villages, and the walking paths between Pugnido Refugee Camp (PRC) and Abawiri village and between PRC and Wichini village. The EDEP held its annual in-country Program Review at Gambella Town on December 2010, and increased the cash reward for reporting a case to 1,000 birr (~US$63) effective January 1, 2011.

Figure 5

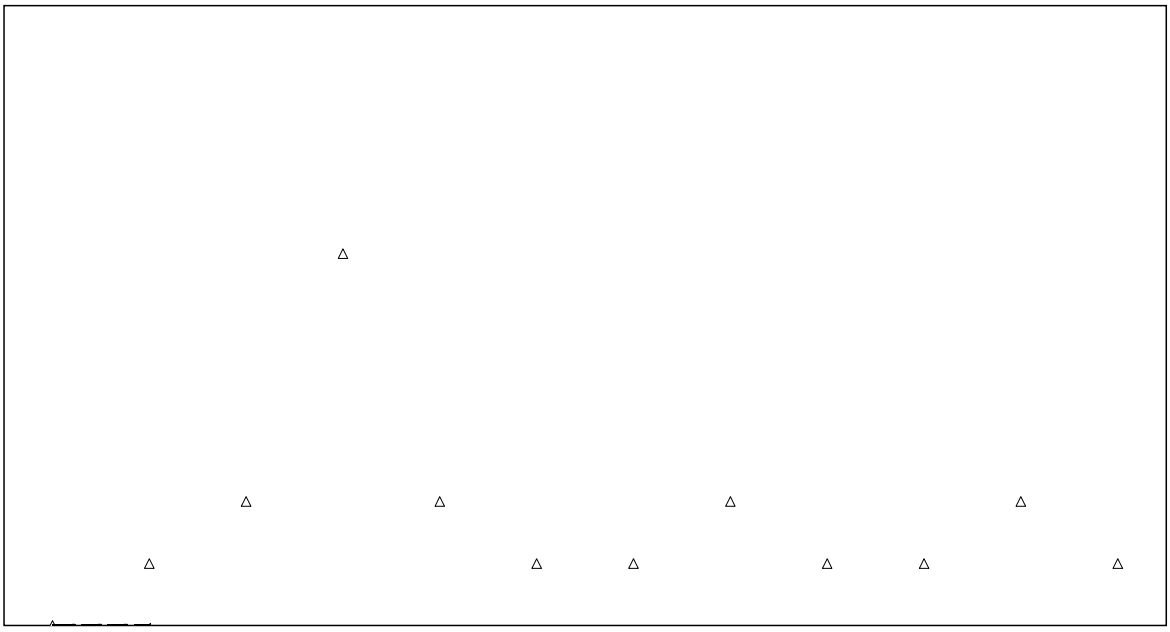


Table 1

									Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec			
Gambella	Agnuak	Gog	Pugnido	Agenga	February	1.1	14	F		14/2/2010	4/3/2010 CCC Release 19, 23	2, 4, 21	18, 26	7, 15, 20, 26	2, 11, 16, 24, 30	11, 18, 23		11, 19, 27	3, 11, 17		25	No evidence of an additional worm.	YES
						2.1					8/3/2010												
						2.2					30/3/2010												
Gambella	Agnuak	Gog	Pugnido	Abiwiri	March	3.1	35	F			17/3/2010	1/4/2010 CCC release 15, 19, 28	17, 24,	15, 19, 23	7, 14, 23	11, 21	10,20,26	1	1, 9, 15, 19, 27		22	Had GWD in 2009. No evidence of an additional worm.	YES
Gambella	Agnuak	Gog	Pugnido	Utuyu	April	4.1	60	F				7/4/2010	19/5/2010 CCC										

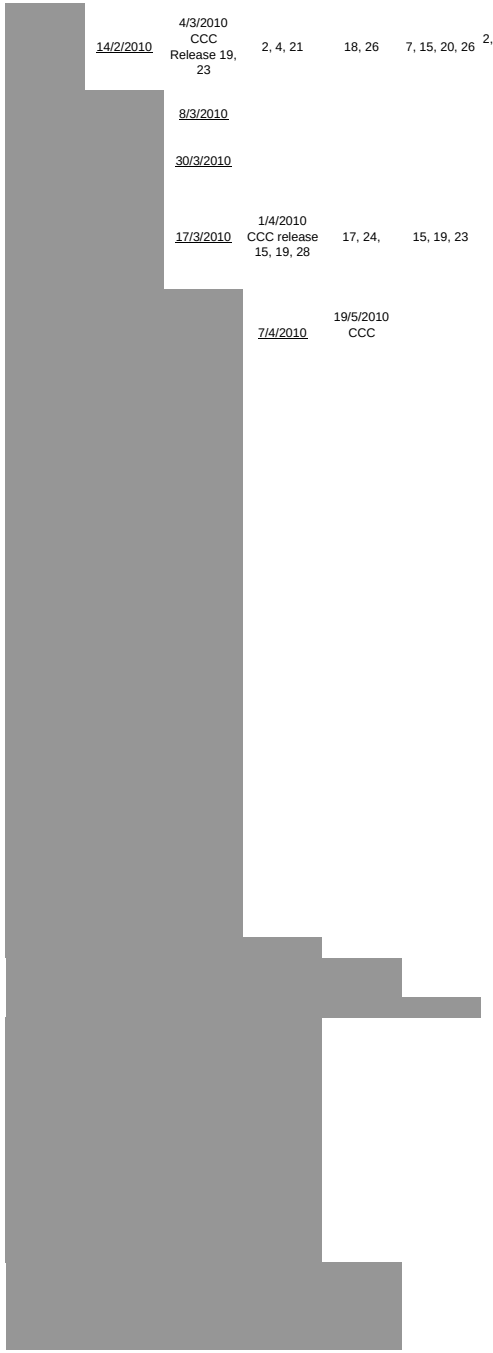


Table 1 (cont.)

EDEP-2010 GWD Case Follow-Up Summary Continued

Region	Zone	Woreda	Kebele	Village of Detection	Month	Case/ Worm Number	Age	Sex	Date of Guinea worm emergence, and dates patient was monitored for additional Guinea worms												Total Number of Follow-Up Visits	Outcomes/ Findings	Case Contained?
									Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec			
Gambella	Agnuak	Gog	Pugnido	Wichini	June	12.1	34	M						17/6/2010	15/7/2010 23/7/2010 CCC Release 30	16, 21, 23, 26	10,14,17,27	8, 12, 15, 21, 26	9, 16, 23, 29		17	Multiple worms. Currently monitoring a swelling on his leg.	NO
					July	12.2																	
Gambella	Agnuak	Gog	Pugnido	Wichini	July	13.1	60	F							12/7/2010		7/9/2010 CCC Release 10,11,13,14, 16,17,20,23, 24,26,27,29	8, 11, 15, 18, 21, 24, 26	6, 9, 16, 20, 26, 29		25	Multiple worms.	YES
						13.2									15/7/2010								
						13.3									22/7/2010								
						13.4									27/7/2010								
						13.5									29/7/2010								
Gambella	Agnuak	Gog	Pugnido	Abiwiri	August	14.1	35	F								1/8/2010	7/9/2010 CCC Release				0	No evidence of an additional worm.	YES
Gambella	Agnuak	Gog	Gog Dipach	Wadmaro	August	15.1	40	F								1/8/2010, 8/26/2010 CCC Release	9,11,15,18,23,25	8, 12, 16, 24, 27	7, 10, 17, 25, 27		16	No evidence of an additional worm.	YES
Gambella	Agnuak	Gog	Pugnido	PRC Agnuak	September	16.1	38	F									9/27/2010		22/11/2010 Wounds Healed and Sent to Chieng 26, 29		2	Multiple worms. Currently monitoring a swelling on his leg.	YES
						16.2											9/30/2010						
					October	16.3												14/10/2010					
Gambella	Agnuak	Gog	Pugnido	Utuyu	October	17.1	35	F										4/10/2010	10/11/2010 CCC Release			No sign of additional worm	YES
Gambella	Agnuak	Gog	Thatha	Akek Terbuni	November	18.1	60	M											5/11/2010		Currently in CCC	Multiple worms.	YES
						18.2													10/11/2010				
						18.3													6/12/2010				
Gambella	Agnuak	Gog	Pugnido	PRC Agnuak	November	19.1	50	F											23/11/2010		Currently in CCC	Multiple worms.	YES
						19.2													23/11/2010				
						19.3													3/12/2010				
Gambella	Agnuak	Gog	Pugnido	PRC Agnuak	December	20.1	12	M													Currently in CCC	No sign of additional worm	YES
						20.2														12/31/2010			

Table 2

								Date of					Travel History: Year, Village and District
1**	PDB10-10	Nanguigoto	Nanguigoto	Guelendeng	60	F	April 2010	04 2010 (2 worms)	April 2010	1-Apr-2010	Yes	No	2008:Mitau Village, Guelendeng District; and Bram Village, Massenia District
2**	PDB10-9	Nanguigoto	Nanguigoto	Guelendeng	27	F	18-Jun-10	18 June 2010 (1 worm)	19-Jun-2010	23-Jun-2010	Yes	No	2008:Mitau Village, Guelendeng District
3		Matassi	Matassi	Massenya	27	F	20-Aug-10	24-Aug-2010 (1 worm)	12-Sept-2010	24-Aug-2010	Yes	No	2005 and 2009:Matassi Village, Mandalia District
4	PDB10-16	Madjafa and Matassi	Abba Limane	Guelendeng	15	M	24-Aug-10	10-Aug-10 (1 worm) Sep 2010 (1 worms)	30-Aug-2010 and Sept 2010	2-Sept-2010 and Sept 2010	Yes	No	2010:Abba Limane Village, Guelendeng District
5**	PDB10-17	Abba Limane since June 2010	Madjafa	Dourbali	25	M	Aug-10	24-Aug-2010 (2 worms)	25-Aug-10	16-Sep-2010	Yes	No	2009:Raihoutou Village, Guelendeng District
6**	PDB10-15	Abourgoui	Abourgui	Dourbali	60	M	2-Sep-10	July-2010 (5 worms)	13-Sept-10	13-Sept-10	Yes	No	1950s ?:Aboukgai Village, Dourbali District
7**	PDB10-19	Moulkou	Moulkou	Guelendeng	4	F	17-Sep-10	17-Sept-2010 (1 worm)	17-Sept-10	23-Sep-2010	Yes	No	2009:Cigague Village, Bongor District
8	PDB10-18	Kakoua	Kakoua	Sarh	9	M	1-Oct-10	1-Oct-2010 (1 worms)	2-Oct-10	11-Oct-2010	Yes	No	
9		??	Sila	Melfi	10	F	1-Oct-10	1-Oct-10 (1 worm)	2-Oct-10	11-Oct-2010	Yes	No	
10		??	Sila	Melfi	42	F	15-Sep-10	15-Sept-10 (2worms)	15-Sep-10	22-Spt-10	Yes	No	

* Provisional

** Worm specimens obtained from these patients were confirmed to be Dracunculus medinensis by the Centers for Disease Control and Prevention in Atlanta.

Patients 1 and 4 dates (underlined) are puzzling.

PDB10-15, 17, 19 "preserved" in water

PDB10-16 no specimen in container. However there is an photograph of this patient with a GW emerging from his ankle.

PDB10-18 fixed in formalin

Table 3

Number of Cases Contained and Number Reported by Month during 2010* (Countries arranged in descending order of cases in 2009)

NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	TOTAL*	% CONT.
SUDAN	5 / 6	21 / 35	78 / 113	119 / 160	144 / 190	173 / 241	273 / 361	226 / 290	118 / 159	71 / 95	27 / 36	/	1255 / 1686	74
GHANA	2 / 2	3 / 3	1 / 1	1 / 1	1 / 1	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	8 / 8	100
MALI	0 / 0	0 / 0	0 / 0	0 / 0	1 / 1	0 / 0	4 / 6	6 / 6	13 / 19	18 / 19	3 / 5	0 / 1	45 / 57	79
ETHIOPIA^	0 / 0	1 / 1	2 / 2	6 / 6	1 / 2	1 / 2	1 / 1	2 / 2	1 / 1	1 / 1	2 / 2	1 / 1	19 / 21	90
CHAD	0 / 0	0 / 0	0 / 0	0 / 1	0 / 0	0 / 1	0 / 1	0 / 3	0 / 1	0 / 1	0 / 2	/	0 / 10	0
NIGER^	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	0 / 0	2 / 2	0 / 1	0 / 0	2 / 3	67
TOTAL*	7 / 8	25 / 39	81 / 116	126 / 168	147 / 194	174 / 244	278 / 369	234 / 301	132 / 180	92 / 118	32 / 46	1 / 2	1329 / 1785	74
% CONTAINED														
% CONT. OUTSIDE SUDAN														

* provisional

^ Ethiiopia reported and imported case from Southern Sudan in June, and Niger reported three imported cases from Mali (2 in October and 1 in November).The origin of cases in Chad is uncertain.
Shaded cells denote months when zero indigenous cases were reported. Numbers indicate how many imported cases were reported that month.

Number of Cases Contained and Number Reported by Month during 2009* (Countries arranged in descending order of cases in 2008)

NUMBER OF CASES CONTAINED / NUMBER OF CASES REPORTED

Figure 6

Global Number of Reported Cases of Dracunculiasis During 2006 -2010*

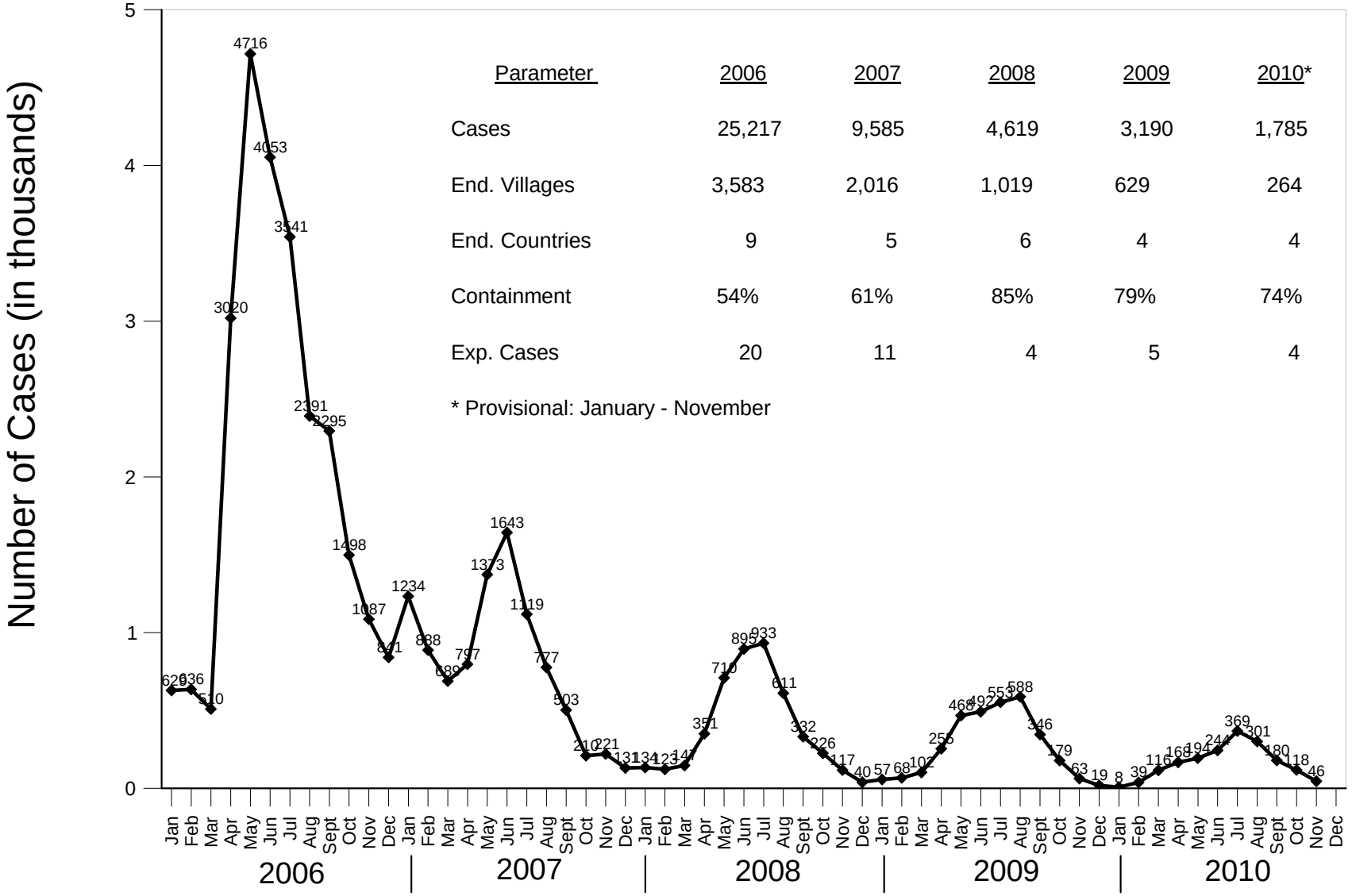


Figure 7

Distribution by Country of 1,781 Indigenous Cases of Dracunculiasis: 2010*

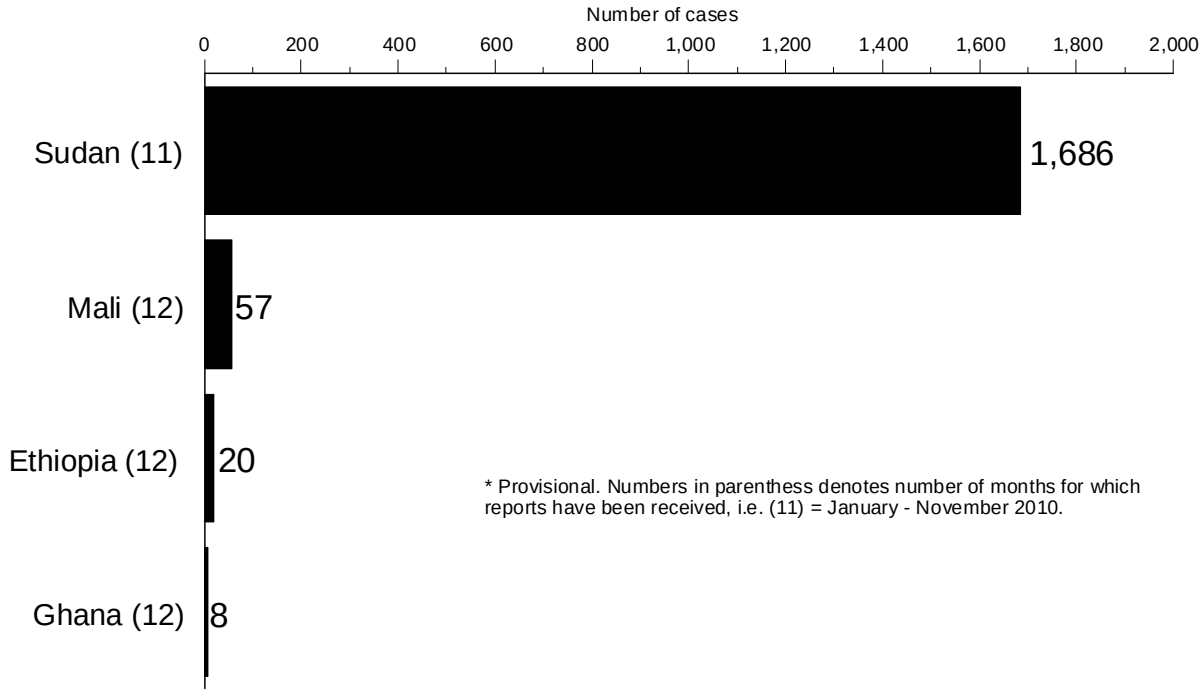
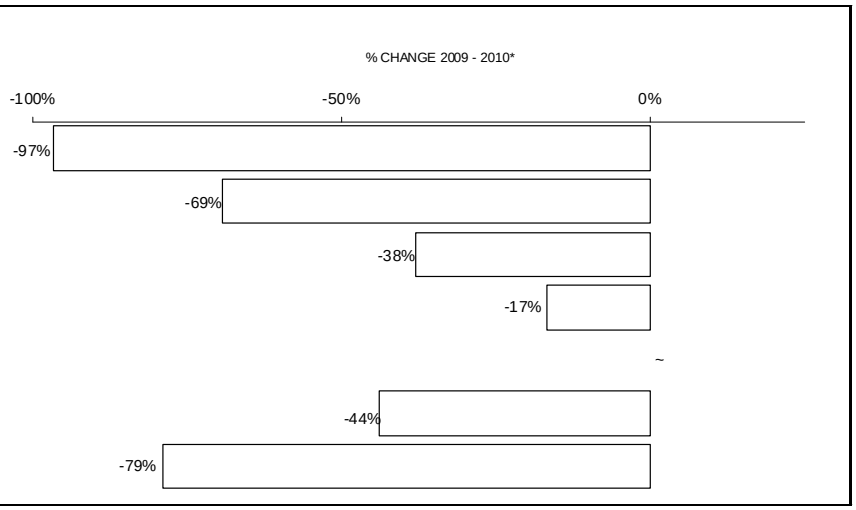


Figure 8

Number of Indigenous Cases Reported During the Specified Period in 2009 and 2010*, and Percent Change in Cases Reported

Country	Indigenous Cases Reported	
	2009	2010*
Ghana (12)	242	8
Mali (12)	186	57
Sudan (11)	2719	1686
Ethiopia (12)	24	20
Chad (12)		10
Total	3171	1781
All countries, excluding Sudan	452	95



* Provisional: excludes cases exported from one country to another
(11) Indicates months for which reports were received, i.e., Jan.-Nov..2010*

RECENT DONATIONS FOR GW ERADICATION

The Carter Center is pleased to announce three new pledges received for the Guinea Worm Eradication Program from the Conrad N.

IMPORTANT DATES IN 2011

- January 9: Referendum on Southern Sudan independence
- January 17-25: meeting of WHO Executive Board at WHO headquarters in Geneva (report and draft resolution on global GWEP)
- January 26: Press event in Accra to announce 2010 results of Ghana's GWEP
- February 15-18: Program Review for GW endemic countries and countries in pre-certification stage, at The Carter Center in Atlanta
- February 17: Carter Center Ceremony to honor interruption of GW transmission in Niger and Nigeria, in Atlanta
- May 16-24: World Health Assembly in Geneva (report, resolution, exhibit and meeting on global GWEP)

DEFINITION OF CASE CONTAINMENT

A case of Guinea worm disease is contained if all the following conditions are met:

1. The patient is detected before or within 24 hours of worm emergence, and
2. The patient has not entered any water source since the worm emerged, and
3. The village volunteer has properly managed the case, by cleaning and bandaging until the worm is fully removed, and by giving health education to discourage the patient from contaminating any water source (if two or more emerging worms are present, the case is not contained until the last worm is pulled out), and
4. The containment process, including verification that it is a case of Guinea worm disease, is validated by a supervisor within 7 days of the emergence of the worm.

RECENT PUBLICATIONS

Eberhard ML, Ruiz-Tiben E, Korkor AS, Roy SL, Downs P, 2010. Case report: emergence of Onchocerca volvulus from skin mimicking Dracunculus medinensis. Am J Trop Med Hyg 83: 1348-1351.

Hopkins DR, 2010. Progress on neglected disease is most moot if we neglect to count. Nature Medicine 16(2): 1358.

Meyer C, 2010. Der Pracsident und der Wurm. Der Spiegel 50:118-122.

World Health Organization, 2010. Monthly report on dracunculiasis cases, January-September 2010. Wkly Epovpemson too [(54c0l.8i0.56m)7.World Healta5eD4Sfrom8-

Inclusion of information in the Guinea Worm Wrap-Up
does not constitute "publication" of that information.
In memory of BOB KAISER